Vector Management Plan
For the
Lynn LaChapelle and Mark Robinson Residence

Case Number(s): AD08-019

Project Name: LaChapelle Barns and Arenas

Project Address: 15404 Highland Valley Road, Escondido, CA 92025

APN 276-023-24

KIVA PROJECT: 08-0095788

Date: July 18, 2008

Prepared by: Lynn LaChapelle and Mark Robinson, owners, with current address of 3334 Avenida Hacienda, Escondido, CA 92029

Prepared for: The County of San Diego

STABLE WASTE, FLY AND VECTOR CONTROL PLAN

1.0 INTRODUCTION

1.1 Purpose of the Report

This Manure Management Plan and Fly / Vector Prevention and Management Plan has been created in consultation with the San Diego County Department of Environmental Health, Vector Surveillance and Control Program. It is an attempt to plan for the minimization of flies, mosquitoes, rodents and other pests that may breed in animal wastes, water troughs or be attracted to supplies of feed. This plan is created to meet the requirements of our Accessory Structure Application.

The San Diego County Code general requirement for garbage and organic wastes are for weekly removal except as approved by the Director of Environmental Health. This plan will request a waiver of the seven- day removal of horse manure and selected organic wastes, substituting on-site manure management and composting to usable fertilizers as the major element of fly breeding control. The resultant soil amendments will be used for plantings on the 30-acre site.

The owners have 10 horses that are permitted by right in this zone. The Accessory Structure Application is being requested so that the owner may store hay and feed within covered and secured Accessory Structures on the property, in addition to riding under a protected arena during times of high heat and inclimate weather.

Principles of Integrated Pest Management, IPM, will be used with no use of pesticides. Daily removal of wet manure will take place and taken to a designated area where it will be placed into aerated bins for composting. The composting area will consist of four bins that will be filled and processed. As one bin is filled, the manure goes into the next bin, etc. By the time the first of bins is "cooked" it is placed into the fourth bin for a month of resting. After one month of resting the manure will be utilized as bedding for the horses and/or spread on the garden and vineyard. The cycle is approximately 30 days and the compost bin will be constructed in accordance with the design principles outlined in O2 Compost.

1.2 Project Description

The Property consists of 30 acres. As proposed, there will be one barn (constructed in the style of a "mare motel") that will consist of 13 16' x 24' stalls (not part of the Accessory Structure Permit), a hay storage building (part of the

Accessory Structure Permit), tack barn (part of the Accessory Structure Permit), a covered dressage arena (part of the Accessory Structure Permit) and two arenas (a 100' x 200' arena and full size dressage court). There will be four fenced pastures with automatic watering devices. Finally, a proposed 1,100 SF guest house (we are building this house first and plans have been submitted for this structure along with the "mare motel").

The compost operation and manure storage area will be located in a well-drained area, approximately 120 feet from the road with the nearest house over 1,000 feet away.

In addition to the above, we plan to have a small 40' x 40' pond will have a circulating pump and water feature. The pond is for aesthetic purposes only and will be managed in accordance with the County of San Diego's Wetland Development and Management Guidelines for the control of Mosquitoes.

1.3 Environmental Setting (Existing Conditions)

The property was formerly a commercial citrus grove and we believe that it had not been irrigated for the past 15 years. The Witch fire burned the property last October so we have had the burned trees removed. Presently the property consists of non-native grasses. There is a small shed on the property that was used for storage of farm equipment.

The area is rural with 5 acre minimum parcels, however, the majority of the parcels are 10 plus acres. The surrounding land uses are largely agricultural avocado groves and single family residences.

The 20 acres to the east of our property is part of the defunct citrus grove and is not inhabited. There are three single family dwellings to the south who have sustained heavy fire damage to their avocado orchards. To the east is 60 acres of former defunct citrus grove which has one single family residence. To the north are two single family residences.

The property is located in Highland Valley which runs adjacent to the San Pasqual Agricultural preserve to the west and north. Interstate 15 is approximately 5 miles to the west of our property and Ramona is approximately 9 miles to the east.

2.0 VECTOR MANAGEMENT

2.1 Management Practices

The Management Plan is designed to:

- Minimize fly and mosquito production,
- Minimize rodents,
- Reduce odors,
- Be a "good neighbor", and
- Minimize manure content and sediment in storm water runoff.

Manure Management: Flies

The vectors likely to be present at our property are flies and mosquitoes. To combat flies, we will be utilizing an automatic fly mist system (non toxic, pyrethrin based) in the "mare motel" (where the animals will be located) and an aerated composting system described and developed by **O2 Compost** (literature is attached).

Manure will be picked up twice daily and put into the compost bin for processing. Given the number of animals that we will have, we have been advised to construct a tarp covered four 7'W x 6'D x 4' H composting bin apparatus to process the manure. Once processed, the manure will be free of all pathogens and will be available to be utilized onsite as compost.

During the summer months when flies are at their peak, we will also utilize "fly predators", an insect that preys on fly larvae.

Fly bait stations may be used at times to reduce the adult fly population.

The accumulation of damp manure, bedding or feed will be avoided.

Feed troughs and bins shall not be located near water sources, because spilled feed attracts flies and makes a good breeding site.

Pesticides and Larvicide's - No use of pesticides are planned in the horse stable operation. Hydrated lime (Sweet PDZ) may be used in some areas reduce odors. It also will reduce fly breeding.

Wetland Management: Mosquitoes

To ensure that we eliminate mosquito larva from developing in our pond, we will fill it with mosquito fish *Gambusia affinis* which prey on mosquito larvae.

Additionally, our overhead fly mist system will also serve to help minimize and eradicate mosquitoes.

The following guidelines will be followed for effective reduction of these fly/mosquito sources within potential wet areas on the property:

1. Use non-leak valves on all water troughs, bowls, cups and other water devices,
2. Use automatic valves or sanitary drains for large troughs or cups if water flow is continuous.
3. Properly grade earth surfaces in paddocks and corrals for drainage. Adapt surfaces to a drainage pattern so that rainwater of water trough overflow does not form ponds.
4. We will repair all water leaks to prevent unnecessary wet manure areas or mosquito breeding areas.

Pasture and Mare Motel watering devices are shallow and utilized continuous flow devices. At least weekly, we will inspect that all watering devices are working, have proper air-gap back-flow prevention and are not breeding mosquitoes. If mosquito breeding is found the water container will be emptied, cleaned and filled with fresh water.

The pond will be designed to be self-draining within 72 hours to prevent mosquito breeding.

In addition, we will follow the guidelines proposed by the County of San Diego Wetland Development and Management Guidelines for the Control of Mosquitoes:

Freshwater Wetland:

1. Have manual control over water elevation.
2. Have a system that allows for that rapid draining of water during times of severe mosquito production or disease outbreaks.
3. The shore banks should be steep enough to prevent pooling as water level recedes and to allow wave action and access by predators.
4. Shoreline configuration should not isolate sections from the main body of water.
5. Depth should be maintained at minimum of three feet during summer.
6. Depth should be maintained without fluctuations except during winter.
7. Shallower areas need to be drained and dry during the mosquito breeding season.
8. Winter wet areas should drain into a deep area with an outlet spillway to maintain water elevation and to give refuge to mosquito fish and predatory insects.

FRESHWATER VEGETATION MANAGEMENT

1. Limit dense stands of aquatic vegetation from shore margins in shallow areas to lower harborage and enhance wave action.
2. When aquatic vegetation is present it should be maintained in small islands.
3. Avoid plants that mat on the surface such as water hyacinth, smartweed, water primrose, knotgrass, pondweed, *Hydrilla,* or filamentous algae.
4. Certain plants, in moderate stands, like cattails and bulrushes generally do not promote mosquito productivity and can function as substrate for mosquito predators.
5. All aquatic vegetation needs to be periodically removed or partially harvested to reduce density.

WATERWAY MAINTENANCE

1. Levees, drain ditches, and other water structures, should be constructed and maintained to prevent seepage or flooding into adjacent lowland areas.
2. Levee faces should be steeply sloped to limit growth or marginal vegetation.
3. Dikes or drains should also have steep slopes(1.5 – 2 feet horizontal to one foot vertical) to allow adequate drainage without standing water, and should be maintained free of vegetation.

SURVEILLANCE

1. Allow access for continual larval and adult mosquito surveillance and the continual monitoring of water quality and vegetation density.
2. Allow additional funding for local vector control agencies as needed for surveillance and management.

Feed Storage: As proposed, we will store hay and straw under a covered three-sided building and will be stored off the ground on wooden pallets to protect the feed but also to reduce the harborage of rodents. The hay feed will be rotated first in first out. Grains and pellets if used will be stored in meta / tin rodent-proof storage containers

Rodent Management:

Feed (other than dry hay) will be stored in the proposed Accessory Structure tack barn in a secured "feed room" located in the tack barn. Additionally, pelleted feed will be placed in plastic bins with sealed tops to ensure the rodent

population is minimized. If a rodent problem exists, snap traps or live traps will be used as necessary. If severe rodent problems occur a licensed Private Pest Control Operator (PCO) may be employed.

General Sanitation Management Methods

A general clean up program shall supplement the manure and water management efforts. Good sanitary methods around corrals or barns shall pay attention to the following items:

1. Use as little bedding material as possible,
2. Remove damp or spilled feed from around bins, tanks and feed troughs bottoms,
3. Remove stillborns and afterbirths at once to tight lid containers or off-grounds disposal,
4. Store all garbage, fruit and vegetable wastes and pet droppings in tight metal / tin containers until off-grounds disposal is possible,
5. Control weeds in order to improve sun penetration and air movement so that the grounds remain dry and to avoid breeding of flies, rodents, mosquitoes and other potential pests,
6. Feed will be stored in vector and rodent-proof metal / tin containers.
7. Yellow Jacket and fly traps will be used if those insects become a problem and are attracted to the high protein feeds.

2.2 Education

The owners will educate themselves on the importance and methods of managing fly, mosquitoes and rodents. The fly breeding cycle will be studied and will stress the importance of breaking the fly breeding cycle within 7 days and 5 days during the hot and humid summer days.

The importance of Storm-water Best Management Practices (BMP's) and integrated pest management will be reviewed to understand what can be done to protect the watershed and water supply.

- Areas of wet manure in the stalls and pastures will be cleaned daily and placed into the Compost Bin to be processed.

- Prior to the known rainy seasons, (September and December to March) cleaning efforts will be made to remove any excess accumulations of manure from the pastures and premises to prevent fly breeding and reduce storm-water runoff. The wet weather operation will include covering the manure pile and compost pile(s) with plastic sheeting to prevent storm-water Good drainage is to be maintained to prevent standing pools of water and mosquito breeding.

The owners of the property will be maintaining the manure compost bins and the fly mist system. The owners have read the appropriate literature and understand the maintenance of each system and the need to manage vectors on the property.

3.0 LONG TERM MAINTENANCE

To ensure the health for the ranch's humans and animals and to maintain an environment that is not a nuisance to our neighbors, we, the owners are committed to performing daily, monthly and annual vector control practices.

4.0 SUMMARY OF MITIGATION MEASURES TO MINIMIZE VECTORS

- We will have an aerated composting system
- We will have an overhead automatic fly mist system in the mare motel
- We will use fly predators during peak fly season
- We will have mosquito fish in the pond and follow the practices outlined by the County for Wetland Management.
- There will be no standing water located in the pastures.

5.0 REFERENCES

Dr. Karen Hayes, author of "The Perfect Stall" and "The Perfect Horsekeeper" with additional input from her website: http://www.theperfectstall.com/index.html and http://www.integralhorse.com

6.0 LIST OF PERSONS AND ORGANIZATIONS CONTACTED

Greg Slawson at the San Diego County Department of Environmental Health was contacted Monday July 21, 2008.

Peter Moon, Owner/Founder of O2 Compost for the design of the aerated compost system

7.0 SIGNATURES

"The measures identified herein are considered part of the proposed project design and will be carried out as part of project implementation. I understand the breeding of mosquitoes is unlawful under the State of California Health and Safety Code Section 2060-2067. I will permit the County of San Diego, Vector Surveillance and Control program to place adult mosquito monitors and to enforce this document as needed."

If this "**Animal Waste, Fly and Vector Control Plan**" is found to be inadequate this plan may be revised in consultation with property owner.

Any changes to the fly / vector plan will be made with consultation and approval of San Diego Department of Environmental Health Services, Vector Control by contacting Greg Slawson at 858-694-5358.

Property Owner/Applicant: _____

Date _____

Approved by the County of San Diego: _____

Name: GREGORY SLAWSON

Date: 8/13/08

ATTACHMENTS: Fly Mist System and O2 Compost literature